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TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i>	Application Number	10/660,054
	Filing Date	September 11, 2003
	First Named Inventor	Shigeru Yamane et al.
	Art Unit	1774
	Examiner Name	Merrick L. Dixon
	Attorney Docket No.	MAT-8260US1
Total Number of Pages in This Submission //		

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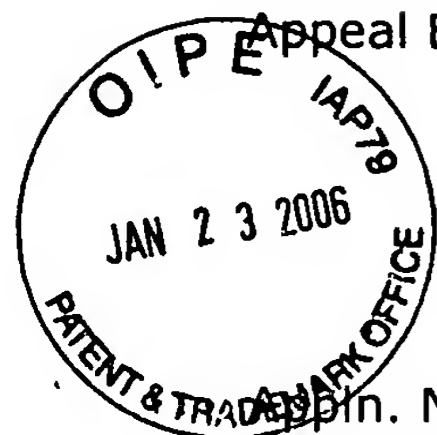
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Appln. No.: 10/660,054

Appeal Brief Dated January 19, 2006

MAT-8260US1



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.: 10/660,054
Applicant: S. YAMANE et al.
Filed: September 11, 2003
Title: METHOD OF MANUFACTURING CLAD BOARD FOR FORMING CIRCUITRY,
CLAD BOARD AND CORE BOARD FOR CLAD BOARD
TC/A.U.: 1774
Examiner: Merrick L. Dixon
Confirmation No.: 7291
Docket No.: MAT-8260US1

APPEAL BRIEF

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P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Further to the Notice of Appeal dated November 16, 2005, Appellants are submitting this Appeal Brief for the above-identified application.

I. REAL PARTY IN INTEREST

The real party in interest is Matsushita Electric Industrial Co., Ltd.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 37, 40, 41, 44, 47, 59, 66, 69, 70, 73, and 76 are pending. Claims 1-36, 38, 39, 42, 43, 45, 46, 48-58, 60-65, 67, 68, 71, 72, 74, 75, and 77-82 have been canceled. Claims 37, 40, 41, 44, 47, 59, 66, 69, 70, 73, and 76 have been appealed.

IV. STATUS OF AMENDMENTS

No amendments have been filed subsequent to Final Rejection.

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V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to a clad board, and a core board for a clad board, for forming circuitry (page 1, lines 7-9; page 3, lines 24-25; page 5, lines 4-5). Although the specification also describes a method of manufacturing a clad board for forming circuitry (page 1, line 7; page 3, line 27-page 4, line 5), the only claims on appeal are apparatus claims. Even though claim 37 recites method steps, it also recites apparatus features. Appellants do not rely on the method steps for the patentability of claim 37 or any other claim. Accordingly, the claimed patentable subject matter in claim 37 is contained in the apparatus recitations of that claim. Dependent claims 40, 41, 44, 47, and 59 do not recite any method steps; only apparatus limitations. Similarly, claims 66, 69, 70, 73, 76 are apparatus claims that do not contain method limitations.

The clad board recited in claim 37 is a fiber sheet included in a pre-preg sheet. Resin material is impregnated into the fiber sheet. The resin material includes at least one of thermoplastic resin and thermosetting resin having semi-cured portion. A resin layer is formed smoothly on the fiber sheet. The resin layer is made of material identical to the resin material that is impregnated into the fiber sheet. The core board recited in claim 66 has nearly identical features as those recited in claim 37. The features recited in the claims are described in Appellants' specification at page 5, lines 9 to 13; page 6, lines 9-12, 17-20, 24-27; page 7, lines 1-2 and Figs. 1A, 1B.

More specifically, Figs. 1A and 1B show a pre-preg sheet 1. (page 5, line 9). Fig. 1B is a sectional view of the pre-preg sheet taken along line 1B-1B in Fig. 1A. (page 4, lines 11-12). Pre-preg sheet 1 is a composite material including impregnated resin 7 and non-woven fabric 6 of fiber sheet. (page 5, lines 9-11). Pre-preg sheet 1 is covered with impregnated resin on its overall surface, so that flat resin layer 8 made of impregnated resin 7 is formed. A thickness of layer 8 ranges from 1 μ m to 30 μ m. (page 6, lines 9-12). Resin layer 8 has a smooth face. (page 6, lines 24-25). Smoothness of resin layer 8 of sheet 1 is important because it prevents

short circuits between adjacent circuit-patterns. (page 6, line 27-page 7, line 8). The clad board with the above features also has increased adhesive force between a metal foil 5 (shown in Fig. 4F) and resin layer 8 resulting in increased adhesive strength of circuit patterns to the board. (page 7, lines 9-12)

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Paragraph 2 of the final rejection dated July 14, 2005 rejected claims 37, 40, 41, 44, 47, 59, 66 and 76 under 35 U.S.C. § 102(b) as anticipated by Nakatani (U.S. Patent No. 6,096,411). Paragraph 4 of the final rejection rejected claims 66, 69, 70, 73 and 76 under 35 U.S.C. § 103(a) as unpatentable over Nakatani.

During a telephone interview with the Examiner on November 10, 2005, the Examiner agreed that applicants could treat the rejection of claims 37, 40, 41, 44, 47, 59, 66, and 76 as a rejection under 35 U.S.C. § 103(a) instead of a rejection under 35 U.S.C. § 102(b). An interview summary was filed with the USPTO on November 11, 2005. Accordingly, claims 37, 40, 41, 44, 47, 59, 66, 69, 70, 73, and 76 have all been finally rejected under 35 U.S.C. § 103(a) as unpatentable over Nakatani.

VII. ARGUMENT

Claims 37, 40, 41, 44, 47, 59, 66, 69, 70, 73, and 76 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Nakatani (U.S. Patent No. 6,096,411). It is respectfully submitted, however, that these claims are patentable over the art of record for the reasons set forth below.

Appellants' invention, as recited by claims 37 and 66, includes a feature that is neither disclosed nor suggested by Nakatani, namely:

Claim 1

resin material impregnated into the fiber sheet, the resin material including at least one of thermoplastic resin and thermosetting resin having semi-cured portion; and

a resin layer formed smoothly on the fiber sheet, the resin layer being made of material identical to the resin material.

Claim 66

resin material impregnated into the fiber sheet, the resin material including at least one of thermoplastic resin and thermosetting resin having semi-cured portion; and

a resin layer formed on the fiber sheet, being made of material identical to the resin material.

Thus, the claims describe the resin layer formed on the fiber sheet as being made of material identical to the resin material impregnated into the fiber sheet.

Figures 1 and 2 of Nakatani, for example, shows a double-sided wire board 6 composed of a laminated material substrate 1, copper foils 4 (also shown as copper foils 41a, 42a), and via holes 13 with conductive paste 30. (col. 8, lines 1-41). Figures 3A and 3B illustrate a multi-layered printed board 61 that is formed by repeatedly using the features shown in Figures 1 and 2. (col. 8, lines 56-59). Figure 3A shows prepregs 10, 10, with through holes 13 filled with conductive paste. On both sides of the core board are copper foils 4, 4. When the prepregs and a base material are heated and pressed with the copper foils, a multi-layered printed board 61 is formed with electrodes 41b, 42b connected through the inner via hole conductors 3. By etching the copper foils 43, 44 on the upper and lower sides into electrodes of a desired pattern, there is a completed multi-layered printed circuit board 61. (col. 8, line 56-col. 9, line 5)

Thus, Nakatani discloses wire board 6 with copper foils 4, 4:

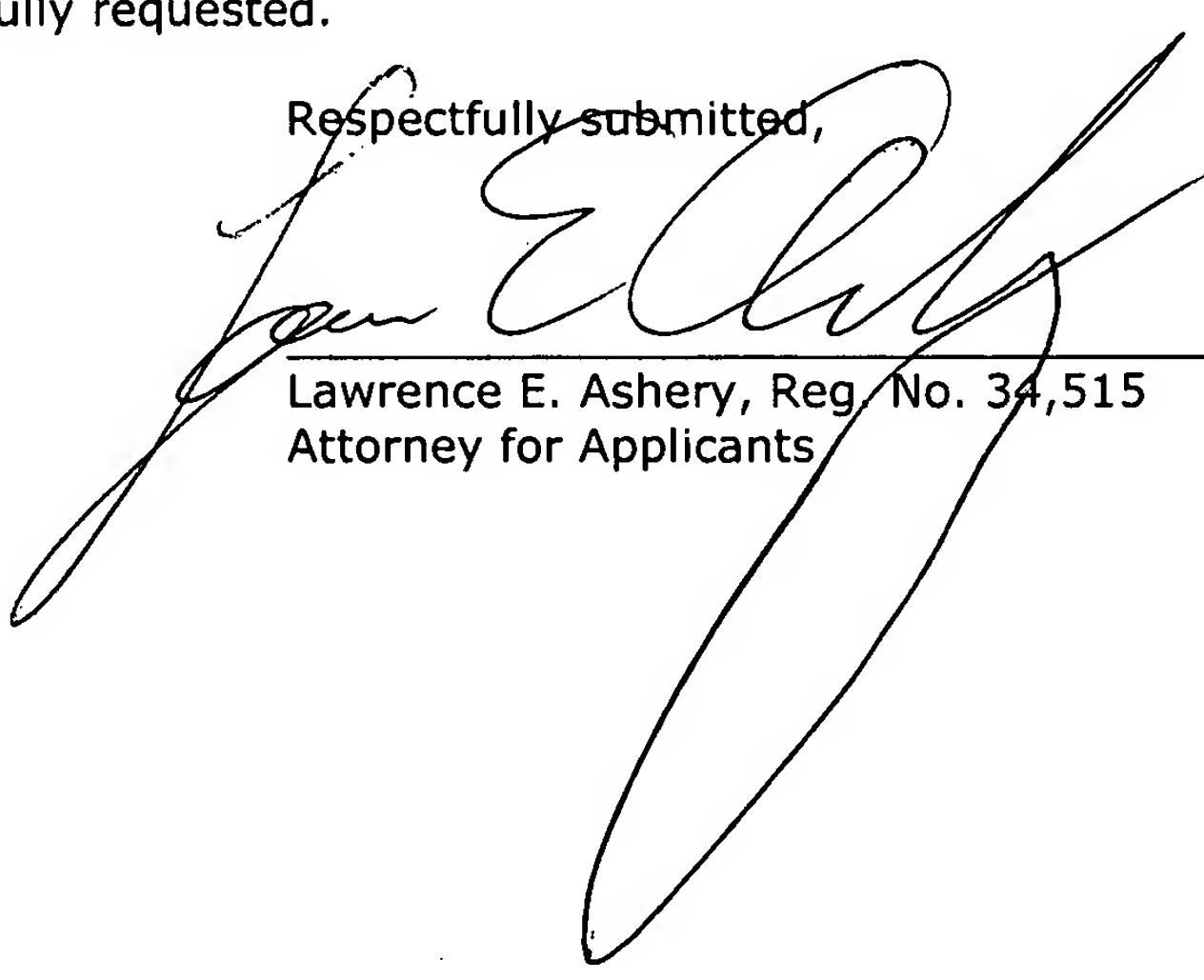
4—	Copper Foil
6—	Wire Board
4—	Copper Foil

Paragraph 5, on page 3 of the Office Action contends that it would have been obvious to substitute resin material for the copper foils disclosed in Nakatani. Applicants respectfully disagree.

In Nakatani, copper foils 4, 4 serve as electrodes to provide electric connection. (col. 8, lines 45-47). That is, the Nakatani device must have copper foils 4, 4 in order to function. If resin layers are substituted for the copper foils in Nakatani, the Nakatani device would no longer function as a printed circuit board. Therefore, it would not have been obvious to one skilled in the art to substitute resin material for the copper foils in the Nakatani device. *In re Fritch*, 23 USPQ2d 1780 at n.12 (Fed. Cir. 1992) (a proposed modification to a prior art reference cannot be used to reject claims if the proposed modification would render the prior art device inoperable for its intended purpose); *In re Gordon*, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (a prior art reference teaches away from the USPTO's proposed modification if the proposed modification would render the prior art device inoperable for its intended purpose).

In view of the arguments set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,



Lawrence E. Ashery, Reg. No. 34,515
Attorney for Applicants

LEA/bj

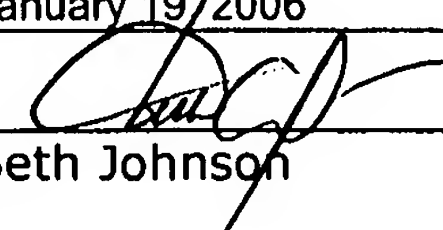
Enclosure: Claims Appendix

Dated: January 19, 2006

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Beth Johnson

APPENDIX OF CLAIMS

Listing of Claims:

1-36. (Canceled)

37. (Original) A clad board for forming circuitry, being manufactured through:

sticking a releasing film to a pre-preg sheet;

forming a hole in the pre-preg sheet with the releasing film, the hole being one of a non-through-hole and a through-hole;

filling the hole with conductive paste;

peeling off the releasing film; and

heating and pressing a metal foil onto the pre-preg sheet,

said clad board comprising:

a fiber sheet included in the pre-preg sheet;

resin material impregnated into the fiber sheet, the resin material including at least one of thermoplastic resin and thermosetting resin having semi-cured portion; and

a resin layer formed smoothly on the fiber sheet, the resin layer being made of material identical to the resin material.

38-39. (Canceled)

40. (Previously Presented) The clad board of claim 37,

wherein the fiber sheet has a density ranging from 700kg/m^3 to 1000kg/m^3 .

41. (Previously Presented) The clad board of claim 37,

wherein the fiber sheet includes;

a first layer disposed at a surface of the fiber sheet; and

a second layer having a density lower than a density of the first layer.

42-43. (Canceled)

44. (Previously Presented) The clad board of claim 37,

wherein the fiber sheet includes;

a first layer; and

a second layer having a density different from a density of the first layer.

45-46. (Canceled)

47. (Previously Presented) The clad board of claim 37,

wherein the fiber sheet includes;

first and second layers disposed at respective surfaces of the fiber sheet; and

a third layer located between the first and second layers, the third layer having a density lower than respective densities of the first and second layers.

48-58. (Canceled)

59. (Previously Presented) The clad board of claim 37,

wherein the fiber sheet has a hole formed therein, said clad board further comprising a conductive paste filling the hole of the fiber sheet, the conductive paste including a conductive particle shaped in non-spherical.

60-65. (Canceled)

66. (Original) A core board for a clad board for forming circuitry, comprising:

a fiber sheet;

resin material impregnated into the fiber sheet, the resin material including at least one of thermoplastic resin and thermosetting resin having semi-cured portion; and

a resin layer formed on the fiber sheet, being made of material identical to the resin material.

67-68. (Canceled)

69. (Previously Presented) The core board of claim 66,

wherein the fiber sheet has a density ranging from 700kg/m^3 to 1000kg/m^3 .

70. (Previously Presented) The core board of claim 66,

wherein the fiber sheet includes;

a first layer disposed at a surface of the fiber sheet; and

a second layer having a density lower than a density of the first layer.

71-72. (Canceled)

73. (Previously Presented) The core board of claim 66,

wherein the fiber sheet includes;

a first layer; and

a second layer having a density different from a density of the first layer.

74-75. (Canceled)

76. (Previously Presented) The core board of claim 66,

wherein the fiber sheet includes;

first and second layers disposed at respective outermost sides of the fiber sheet; and

a third layer located between the first and second layers, having a density lower than respective densities of the first and second layers.

77-82. (Canceled)

EVIDENCE APPENDIX

None

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